

FIREFIGHTER II MOD C

Loss Control

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2-17 LOSS CONTROL

Salvage

- 2-17.1** Identify the purpose of salvage and its value to the public and fire department. (3-3.13, 3-5.3)
- 2-17.2** Identify the benefits of salvage. (3-3.13, 3-5.3)
- 2-17.3** Identify the considerations for planning salvage work (3-3.13, 3-5.3)
- 2-17.4** Identify the construction and uses of the following:(3-3.13, 3-5.3)
 - 2-17.4.1** Water chute
 - 2-17.4.2** Catchall
 - 2-17.4.3** Carryall
 - 2-17.4.4** Salvage covers (to remove debris)
- 2-17.5** Identify the procedures for the covering or closing of building openings, including doors, windows, floors, and roofs. (3-3.13, 3-5.3)
- 2-17.6** Identify two (2) folds and rolls for salvage covers. (3-3.13, 3-5.3)
- 2-17.7** Identify two (2) methods of deploying salvage covers to cover property. (3-3.13, 3-5.3)
- 2-17.8** **Demonstrate two folds and rolls for salvage covers. (3-3.13(b), 3-5.3(b))**
- 2-17.9** **Demonstrate two methods of deploying salvage covers to cover property. (3-3.13(b), 3-5.3(b))**
- 2-17.10** **Demonstrate the construction and use of a water chute. (3-3.13(b), 3-5.3(b))**
- 2-17.11** **Demonstrate the construction and use of a water catchall. (3-3.13(b), 3-5.3(b))**
- 2-17.12** **Demonstrate the covering or closing of building openings, including doors, windows, floors, and roofs. (3-3.13(b), 3-5.3(b))**
- 2-17.13** **Demonstrate the removal of debris, and the removal and routing of water from a structure. (3-3.13(b), 3-5.3(b))**
- 2-17.14** **Demonstrate the procedures of inspection, cleaning and maintaining salvage equipment. (3-3.13(b), 3-5.3(b))**

OVERHAUL

- 2-17.15** Identify the purpose of overhaul. (3-3.13, 3-5.3)
- 2-17.16** Identify the methods used to detect hidden fires. (3-3.7, 3-3.12)
- 2-17.17** Identify the precautions and procedures to be followed when overhauling. (3-3.7, 3-3.12)
- 2-17.18** Identify the procedures for restoration of the premises after a fire. (3-3.13)
- 2-17.19** Identify the duties of firefighters left at the fire scene for fire and security surveillance. (3-3.13)
- 2-17.20** Identify the procedures to expose hidden fires by opening ceilings, walls, floors, and pulling apart burned materials. (3-3.12, 3-3.13)
- 2-17.21.** Identify the procedures to separate, remove and relocate charred material to a safe location while protecting the area of origin for determination or cause. (3-3.12, 3-3.13)

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- 2-17.22 Demonstrate exposing hidden fires by opening ceilings, walls, floors, and by pulling apart burned materials. (3-3.12(b))**
- 2-17.23 Demonstrate separation, removal, and relocating charred material to a safe location while protecting the area of origin for determination of cause. (3-3.13(b))**

References

IFSTA Essentials, 4th ed., Chapter 16

Delmar, Firefighter's Handbook, copyright 2000, Chapter 20

Jones & Bartlett, Fundamentals of Fire Fighting Skills, 1st ed., Chapters 18 & 37

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Salvage

- I. Identify the purpose of salvage and its value to the public and fire department. **2-17.1** (3-3.13, 3-5.3)
 - A. Purpose
 1. To aid in reducing fire, water and smoke damage during and after fires.
- II. Identify the benefits of salvage. **2-17.2** (3-3.13, 3-5.3)
 - A. Value/Benefits
 1. Minimize losses
 2. Build goodwill
- III. Identify the considerations for planning salvage work. **2-17.3** (3-3.13, 3-5.3)
 - A. Equipment inventory
 - B. Training
 1. Procedures
 2. Equipment
 3. Timing of salvage operations
 - C. Arranging contents
 1. Close piles
 2. Group in center of room
 3. Place high item in center
 4. May not be possible in commercial occupancies
 - D. Care and maintenance
 1. Synthetic salvage covers
 - a. Rinse off
 - b. Dry (recommended, but not necessary)
 - c. Fold

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2. Canvas salvage covers
 - a. Wet with hose
 - b. Scrub with a broom
 - c. Rinse
 - d. Dry
 - e. Fold
3. Inspection
 - a. Have three or four firefighters line up along one end of the salvage cover
 - b. Have them pass the salvage cover over their heads and start walking towards the other end.
 - c. While walking, have the firefighters look up to detect any light shining through holes in the cover
 - d. Have the firefighters mark any holes with chalk to be repaired
4. Cleaning of salvage equipment
 - a. Once cover is empty and brushed off, it must be washed using a mild soap solution, and hung to dry.
5. Maintaining salvage equipment
 - a. Salvage cover should be inspected for holes and tears
 - b. Salvage cover should be repaired as needed
 - c. Cover should then be folded and placed back on the apparatus or in storage.

IV. Identify the use and construction of the following: **2-17.4**

A. Water chute. **2-17.4.1**

1. Used to remove water
2. Create a water chute using salvage cover and pike poles
3. Place chute on the lower floor under firefighting effort, utilizing a ladder
4. Place one end of chute on ladder at an angle higher than window, doorway, or down a stairwell
5. Place other end of chute out window, doorway or down stairwell for runoff.

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- B. Catchall. **2-17.4.2**
 - 1. Using catchall to catch water until water chute is created
 - a. Create catchall
 - b. Place on lower floor, under firefighter efforts, to catch water until water chute is created
- C. Carryall **2-17.4.3**
 - 1. Using carryall to remove debris
 - c. Heavy canvas
 - 1) Approximately six (6) foot square
 - 2) Has a rope strung through the grommets for handles
- D. Salvage covers to remove debris **2-17.4.4**
 - 1. Fold cover into a loose fold and roll
 - 2. By folding it on itself, debris will be trapped inside to remove it where it is to be dumped
- V. Identify the procedures for the covering or closing of building openings, including doors, windows, floors, and roofs. **2-17.5 (3-3.13, 3-5.3)**
 - A. Windows/doors
 - 1. Cover with plywood, heavy plastic or similar materials to keep out rain
 - 2. Plywood, hinges, a hasp and a padlock can make a temporary door.
 - B. Floors/roofs
 - 1. Cover with plywood, roofing paper, heavy plastic sheeting or tar paper, using appropriate nails where applicable
 - 2. Mark the “holes/hazards”

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VI. Identify two (2) folds and rolls for salvage covers **2-17.6** (3-3.13, 3-5.3)

A. One Person Roll

1. Lay cover flat on the floor with one person at each end.
2. Grasp the cover with one hand midway between the center and the edge to be folded
3. Using the other hand as a pivot, pull tightly with the folding hand and bring the fold over toward the center
4. After the first fold has been placed at the center, grasp the open edge with the outside hand. Using the other hand as a pivot, stretch the cover
5. Bring this outside edge over to the center and place it on top and in line with the previously placed fold.
6. Fold the other half of the cover in the same manner by using steps 1, 2, 3, and 4.
7. Fold over twelve (12) inches at both ends
8. Start rolling at either end. Compress the first few rolls as tightly as possible
9. Tuck in slack at center if wrinkles appear while rolling.

B. Two Person Roll

1. With the cover stretched lengthwise, both firefighters grasp opposite ends of the cover at the center grommet and then pull the cover tightly between them.
2. Raise the center fold high above the floor and shake out the wrinkles to form the first half fold.
3. Spread the half fold upon the floor, and smooth it flat to remove the wrinkles
4. With a firefighter standing at each end of the half fold and facing the cover, grasp the open edge corners with the hand nearest to these corners. While in this position, place the corresponding foot at the center of the half fold and thus make a pivot for the next fold
5. Stretch that part of the cover being folded tightly between the firefighters
6. Make the quarter fold by folding the open edges over the folded edges
7. One firefighter should stand on one end of the quarter fold while the other firefighter grasps the opposite end and shakes out the wrinkles
8. The firefighter holding the end of the cover then folds the quarter fold into one hand and carries this end to the partner

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9. Both firefighters then crouch at each end of the lengthwise fold. The one at the fold forms a pivot with his hands. The other firefighter places the upper end just short of the other end
 10. Both firefighters then grasps the open ends and use their inside foot as a pivot for the next fold.
 11. Both firefighters bring these open ends over and place them just short of the folded center fold.
 12. The firefighters continue this folding process by bringing the open ends over and just short of the folded end. During this fold, the free hand may be used as a pivot to hold the cover straight.
 13. The firefighters complete the operation by one more fold in the same manner. They bring the open ends over and to the folded end using the free hand as a pivot during the fold.
- VII. Identify two (2) methods of deploying salvage covers to cover property. **2-17.7**
(3-3.13, 3-5.3)
- A. One person with a rolled cover
1. Start at one end of the object to be covered and while still holding the roll in the hands, unroll it sufficiently to cover the end.
 2. Lay the roll on the object and continue to unroll toward the opposite end.
 3. Let the rest of the roll fall into place
 4. Stand at one end and grasp the open edges
 5. Open both sides by snapping both hands up and out
 6. Open the other end in the same manner
- B. Two person with a folded cover
1. Stretch the cover along one side of the object to be covered and separate the last half fold by grasping each side of the cover near the ends
 2. Make several accordion folds in the hand that is to make the throw and place the other hand about midway down the end hem
 3. Pull the cover tightly between the operators and prepare to swing the folded part down, out and then up in one sweeping motion so as to pocket as much air as possible.
 4. When the cover is as high as the operators can reach, the accordion folds may either be pitched or carried across the object; an action which cases the cover to float over the object
 5. As the cover is floated over the object, guide it into position and straighten for better run off

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VIII. Demonstrate two (2) folds and rolls for salvage covers 2-17.8 (3-3.13(b), 3-5.3(b))

A. One Person Roll

1. Lays cover flat on the floor with one person at each end.
2. Grasps the cover with one hand midway between the center and the edge to be folded
3. Using the other hand as a pivot, pulls tightly with the folding hand and brings the fold over toward the center
4. After the first fold has been placed at the center, grasps the open edge with the outside hand. Using the other hand as a pivot, stretches the cover
5. Brings this outside edge over to the center and places it on top and in line with the previously placed fold.
6. Folds the other half of the cover in the same manner by using steps 1, 2, 3, and 4.
7. Folds over twelve (12) inches at both ends
8. Starts rolling at either end. Compresses the first few rolls as tightly as possible
9. Tucks in slack at center if wrinkles appear while rolling.

B. Two Person Roll

1. With the cover stretched lengthwise, both firefighters grasp opposite ends of the cover at the center grommet and then pull the cover tightly between them.
2. Raises the center fold high above the floor and shakes out the wrinkles to form the first half fold.
3. Spreads the half fold upon the floor, and smoothes it flat to remove the wrinkles
4. With a firefighter standing at each end of the half fold and facing the cover, grasps the open edge corners with the hand nearest to these corners. While in this position, places the corresponding foot at the center of the half fold and thus makes a pivot for the next fold
5. Stretches that part of the cover being folded tightly between the firefighters
6. Makes the quarter fold by folding the open edges over the folded edges
7. One firefighter should stand on one end of the quarter fold while the other firefighter grasps the opposite end and shakes out the wrinkles
8. The firefighter, holding the end of the cover, then folds the quarter fold into one hand and carries this end to the partner

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9. Both firefighters then crouch at each end of the lengthwise fold. The one at the fold forms a pivot with his hands. The other firefighter places the upper end just short of the other end
10. Both firefighters then grasp the open ends and use their inside foot as a pivot for the next fold.
11. Both firefighters bring these open ends over and place them just short of the folded center fold.
12. The firefighters continue this folding process by bringing the open ends over and just short of the folded end. During this fold, the free hand may be used as a pivot to hold the cover straight.
13. The firefighters complete the operation by one more fold in the same manner. They bring the open ends over and to the folded end using the free hand as a pivot during the fold.

IX. Demonstrate two (2) methods of deploying salvage covers to cover property. 2-17.9 (3-3.13(b), 3-5.3(b))

A. One person with a rolled cover

1. Starts at one end of the object to be covered and while still holding the roll in the hands, unrolls it sufficiently to cover the end.
2. Lays the roll on the object and continues to unroll toward the opposite end.
3. Lets the rest of the roll fall into place
4. Stands at one end and grasps the open edges
5. Opens both sides by snapping both hands up and out
6. Opens the other end in the same manner

B. Two person with a folded cover

1. Stretches the cover along one side of the object to be covered and separates the last half fold by grasping each side of the cover near the ends
2. Makes several accordion folds in the hand that is to make the throw and places the other hand about midway down the end hem
3. Pulls the cover tightly between the operators and prepares to swing the folded part down, out, and then, up in one sweeping motion, so as to pocket as much air as possible.
4. When the cover is as high as the operators can reach, the accordion folds may either be pitched or carried across the object; an action which causes the cover to float over the object
5. As the cover is floated over the object, guides it into position and straightens for better run off

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X. Demonstrate the construction and use of a water chute. 2-17.10 (3-3.13(b), 3-5.3(b))

A. With pike poles

1. Lays the salvage cover out flat
2. Places a pike pole on opposite sides
3. Rolls the salvage cover around the pike poles until the desired width is reached

B. Without pike poles

1. Lays the salvage cover out flat
2. Rolls the salvage cover towards the center until the desired width is reached
3. Flips the cover over so the rolls are under the cover

XI. Demonstrate the construction and use of a water catchall. 2-17.11 (3-3.13(b), 3-5.3(b))

- A. With the cover spread on the floor, rolls the sides inward approximately three (3) feet.
- B. Lays the ends of the side rolls over at a 90 degrees angle to form the corners of the basin.
- C. Rolls one end into a tight roll, on top of the side roll, and forms a projected flap.
- D. Using his/her outside hand to lift the edge roll, tucks the end roll to lock the corners
- E. Rolls the other end in a like manner

XII. Demonstrate the covering or closing of building openings, including doors, windows, floors, and roofs. 2-17.12 (3-3.13(b), 3-5.3(b))

A. Windows/doors

1. Covers with plywood, heavy plastic or similar materials to keep out rain

B. Floors/roofs

1. Covers with plywood, roofing paper, heavy plastic sheeting or tar paper, using appropriate nails where applicable
2. Marks the "holes/hazards"

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XIII. Demonstrate the removal of debris and the removal and routing of water from a structure. 2-17.13 (3-3.13(b), 3-5.3(b))

- A. Removing water utilizing water chutes
 - 1. Creates water chute using salvage cover and pike poles
 - 2. Places chute on the lower floor under firefighting efforts, utilizing a ladder.
 - 3. Places one end of chute on ladder at an angle higher than window, doorway, or down a stairwell.
 - 4. Places other end of chute out window, doorway or down stairwell for runoff.
- B. Using catchall to catch water until water chute is created.
 - 1. Creates catchall
 - 2. Places on lower floor, under firefighter efforts, to catch water until water chute is created.
- C. Using carryall to remove debris.
 - 1. Places debris in carryall
- D. Using salvage covers to remove debris
 - 1. Folds cover into a "loose fold and roll".

XIV. Demonstrate the procedures for inspection, cleaning and maintaining salvage equipment. 2-17.14 (3-3.13(b), 3-5.3(b))

- A. Inspection
 - 1. Three or four firefighters line up along one end of the salvage cover
 - 2. They pass the salvage cover over their heads and start walking towards the other end.
 - 3. While walking, the firefighters look up to detect any light shining through holes in the cover
 - 4. The firefighters mark any holes with chalk to be repaired
- B. Cleaning of salvage equipment
 - 1. Firefighter empties and brushes off equipment
 - 2. Firefighter properly washes using a mild soap solution
 - 3. Firefighter properly hangs to dry

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- C. Maintaining salvage equipment
 - 1. Firefighter(s) inspect salvage cover should be inspected for holes and tears
 - 2. Firefighter(s) repair salvage cover, as needed
 - 3. Firefighter(s) fold salvage cover and place back on apparatus or in storage.

Overhaul

XV. Identify the purpose of overhaul **2-17.15** (3-3.12, 3-3.13, 3-5.3)

- A. Purpose
 - 1. Overhaul is the practice of searching a fire scene to detect hidden fires or sparks, which may rekindle, and to note the possible point of origin and cause of fire.

XVI. Identify the methods used to detect hidden fires. **2-17.16** (3-3.7, 3-3.12)

- A. Sight
 - 1. Discoloration
 - 2. Peeling paint
 - 3. Smoke emitting from cracks
 - 4. Cracked plaster
 - 5. Rippled wallpaper
 - 6. Burned areas
- B. Sound
 - 1. Popping or cracking noises
 - 2. Hissing of steam
- C. Touch
 - 1. Feel walls with the back of hand
- D. Electronic sensors
 - 1. Thermal detection
 - 2. Infrared detection

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- XVII. Identify the precautions and procedures to be followed when overhauling. **2-17.17**(3-3.7, 3-3.12)
- A. Wear proper PPE with SCBA where applicable
 - B. Should be supervised by an officer not directly involved in the overhaul operations
 - C. Charged hoselines available
 - D. Evaluate structural integrity
 - 1. Weakened floors
 - 2. Spalled concrete
 - 3. Weakened steel
 - 4. Weakened trusses
 - 5. Weakened walls
- XVIII. Identify the procedures for restoration of the premises after a fire. **2-17.18** (3-3.12, 3-3.13)
- A. Make the building safe
 - B. Make the contents safe
 - C. Make the area safe
 - D. Insure fire protection systems have been restored to operational status by a qualified technician.
 - 1. Sprinkler systems
 - 2. Standpipe systems
 - 3. Alarm systems
 - E. Insure utility services are not restored until inspected and deemed safe by the appropriate utility representative or qualified repairperson.
 - F. Secure the building
 - 1. Cover roof openings
 - 2. Cover doors and windows
 - G. Release the premises to the owner
 - 1. Done in front of witness

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- XIX. Identify the duties of firefighters left at the fire scene for fire and security surveillance. **2-17.19** (3-3.12, 3-3.13)
- A. Guard the evidence where it is found, untouched and undisturbed, to preserve the chain of custody
 - B. Properly identify, remove and safeguard evidence that cannot be left at scene of fire.
 - C. Controlling access
- XX. Identify the procedures to expose hidden fires by opening ceilings, walls, floors, and pulling apart burned materials. **2-17.20** (3-3.12, 3-3.13)
- A. Ceilings
 - 1. Position yourself between the area to be opened and an escape route
 - 2. Break plaster in the area to be pulled
 - 3. Use a pike pole or similar tool to hook and pull the lath or wire mesh
 - 4. Pull down and away
 - B. Floors
 - 1. Wood
 - a. Determine the approximate location for the hole based on need
 - b. Sound for floor joists to decide the exact location
 - c. Cut one side of the finished floor by using angle cuts
 - d. Cut the other side of the finished floor in a like manner
 - e. Remove the flooring or floor covering with the pick of the axe
 - f. Cut all sides of the sub-floor using the same technique and angle cuts
 - g. Remove the boards from the sub-floor
 - C. Walls
 - 1. Masonry/Veneer
 - a. Use power tools to cut an opening
 - b. Use battering ram to knock away material

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2. Metal
 - a. Select location for the opening
 - b. Position saw or other metal cutting tool next to studs
 - c. Make opening as neat as possible
3. Wood frame
 - a. Remove the siding
 - b. Sound the wall for the studs
 - c. Cut along the stud
 - d. Remove the sheathing
 - e. Watch for electrical wiring and pipes
4. Partition walls
 - a. Select the location of the opening
 - b. Check for electric wall plugs and switches
 - c. Select the appropriate tools
 - d. Locate the studs by sounding
 - e. Cut along the studs with a fire axe or other cutting tool

XXI. Identify the procedures to separate, remove and relocate charred material to a safe location while protecting the area of origin for determination or cause. **2-17.21 (3-3.12, 3-3.13)**

- A. Determine that removal of materials will not affect cause and origin investigation
- B. Separate materials to check for embers
- C. Use hoseline or hand can to cool materials
- D. Remove larger items from building
 1. If items may be salvageable, or contain contents that may be salvageable, place off to the side away from pile of debris.
- E. Shovel or place smaller debris into tubs, garbage cans or carryalls
- F. Remove debris from building
 1. Take care to prevent damage to walls doors
 2. Place in safe place
 3. Avoid placing on lawn, sidewalks, if possible
 4. Do not place on adjacent property

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XXII. Demonstrate exposing hidden fires by opening ceilings, walls, floors, and by pulling apart burned materials. 2-17.22 (3-3.12(b), 3-3.13(b))

A. Ceilings

1. Positions his/herself between the area to be opened and an escape route
2. Breaks plaster in the area to be pulled
3. Uses a pike pole or similar tool to hook and pulls the lath or wire mesh
4. Pulls down and away

B. Floors

1. Wood
 - a. Determines the approximate location for the hole based on need
 - b. Sounds for floor joists to decide the exact location
 - c. Cuts one side of the finished floor by using angle cuts
 - d. Cuts the other side of the finished floor in a like manner
 - e. Removes the flooring or floor covering with the pick of the axe
 - f. Cuts all sides of the sub-floor using the same technique and angle cuts
 - g. Removes the boards from the sub-floor

C. Walls

1. Masonry/Veneer
 - a. Uses power tools to cut an opening
 - b. Uses battering ram to knock away material
2. Metal
 - a. Selects location for the opening
 - b. Positions saw or other metal cutting tool next to studs
 - c. Makes opening as neat as possible

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3. Wood frame
 - a. Removes the siding
 - b. Sounds the wall for the studs
 - c. Cuts along the stud
 - d. Removes the sheathing
 - e. Watches for electrical wiring and pipes
4. Partition walls
 - a. Selects the location of the opening
 - b. Checks for electric wall plugs and switches
 - c. Selects the appropriate tools
 - d. Locates the studs by sounding
 - e. Cuts along the studs with a fire axe or other cutting tool

XXIII. Demonstrate separation, removal and relocating charred material to a safe location while protecting the area of origin for determination or cause. 2-17.23 (3-3.12(b), 3-3.13(b))

- A. Determines that removal of materials will not affect cause and origin investigation
- B. Separates materials to check for embers
- C. Uses hoseline or hand can to cool materials
- D. Removes larger items from building
 1. If items may be salvageable, or contain contents that may be salvageable, places off to the side away from pile of debris.
- E. Shovels or places smaller debris into tubs, garbage cans or carryalls
- F. Removes debris from building
 1. Takes care to prevent damage to walls doors
 2. Places in safe place
 3. Avoids placing on lawn, sidewalks, if possible
 4. Does not place on adjacent property